



Illinois grassed waterway
Photo courtesy of P. Buck

Part I. Planning and Design Considerations

Applicability of Practice

Grassed waterways are strips of grass and other non-woody perennial vegetation that are established in agricultural fields where water concentrates or flows off of the field. Grassed waterways established to prevent gully erosion and trap contaminants and field sediments potentially provide many benefits to onsite and offsite aquatic habitats. These improvements to aquatic habitats may include improved water quality, reduced soil erosion, improved floodplain function, and recharge of groundwater aquifers. When grassed waterways are designed and maintained to be wildlife friendly, they provide habitat for feeding, nesting, and resting wildlife. They also may serve as important travel corridors that allow animals to move safely between habitats.

Site Considerations

- Landowner objectives (types of wildlife and objectives consistent with intended function of the waterway)
- Proximity to available water
- Adjacent cropland (irrigated or non-irrigated; type of crop)
- Soil qualities (texture, depth, moisture content)
- Connectivity to other wildlife habitats
- Plant hardiness zones

- Size of the grassed waterway and ability to accommodate species life history needs
- Frequency and depth of inundation
- Width and length of grassed waterway and ability to accommodate desired wildlife species
- Special wildlife needs (e.g., threatened or endangered species)

Design Considerations

The primary purpose of grassed waterways is maintenance of soil and water quality. Depending on site characteristics and local conditions (e.g., timing and extent of runoff events), waterway design may need to be modified to enhance their value for wildlife. For example, the waterway may need to be wider to accommodate the higher retardance of the taller and unmowed grass.

If disturbance to the grassed waterway is frequent and pervasive, then opportunities to manage the buffer for wildlife are greatly limited. Attention, therefore, should focus on those situations where disturbance (e.g., mowing) can be minimized and frequency and depth of inundation reduced.

As is true for all linear or strip habitats (e.g., fencerows, roadsides, or other buffer practices such as field borders, filter strips, windbreaks-shelterbelts, or riparian forest buffers), wider buffers with diversified stands of different plant types (e.g., grass and forb), will accommodate more species of



Western meadowlark
Photo courtesy of K. Hollingsworth

wildlife than narrow buffers comprised of a single species. Whereas mixes of native grasses and forbs may be desirable from the wildlife standpoint, establishment of native plants in areas of concentrated flow may not be practical. Addition of forbs to seeding mix will generally enhance wildlife value. Note that aggressive introduced plants such as reed canarygrass and tall fescue adversely affect wildlife and should always be avoided when planning for wildlife. Refer to the table in Part II for acceptable plant species. Recommended widths of grassed waterways for use as travel corridors is 50 ft (20-ft minimum) and nesting or escape cover is 100 ft (40-ft minimum).

Maintenance Considerations

The amount of maintenance required and the method used to maintain grassed waterway vegetation depends on the engineering design, the wildlife goals, and types of vegetation established in the buffer. Within the above constraints, management should seek to maintain the viability of vegetation and minimize disturbance to wildlife especially during the reproductive period. Timing of maintenance is particularly critical if ground-nesting birds are using the waterway. Farm operations in surrounding fields should be carried out so as to minimize crossings by farm equipment during the critical reproductive period. Disturbances necessary for maintaining vegetation or buffer function such as mowing, burning, selective herbicide treatment, or grazing should be delayed until after August 1. If waterways are frequently crossed by farm equipment or if treatment before August 1 is unavoidable, then treatments should be initiated as soon as possible after spring-runoff (May 1) to minimize destruction of nests and discourage wildlife use of buffer. A flushing bar is recommended for all haying operations. Mowing at

night causes high mortality of wildlife (adults and young) and should be avoided at all times. Maintenance schedule of waterways may need to be adjusted to take into consideration activities occurring on adjacent areas. For example, if nests of ground-nesting birds are disturbed in nearby fields (e.g., pastureland or hayland), then displaced birds may attempt to renest in waterways or other buffer strips. Delaying treatments beyond conventional dates may be necessary to accommodate these late nesting birds.

Part II. List of Acceptable Plants for Grassed Waterways

Native Grasses Species	Site Suitability ¹
Big bluestem	D,WD,PD
Indiangrass	D,WD,PD
Switchgrass	D,WD,PD
Non-native Grasses Species	
Smooth brome	D,WD
Timothy	WD,PD
Red top	WD,PD
Birdsfoot trefoil	D,WD,PD

¹Site Suitability: D = Droughty, WD = Well Drained, PD = Poorly Drained.

Part III. Specifications Sheet

Use Specification Sheet provided with general Grassed Waterway Job Sheet. Include wildlife species desired and maintenance specifications relevant to this species or assemblage of species.

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